

AMENDED CLAIMS

5 [received by the International Bureau on 13 November 1995(13.11.95);
original claims 1 - 36 replaced by amended claims 1 - 42 (9 pages)]

DK 1. A gasket for providing a seal at the joint between a pair of pipe flanges for connecting one flange to the other, each flange having an inner periphery and an outer periphery, the joint having a plurality of fasteners disposed around said flanges, comprising:

10 a first strip of sealing material formed in a substantially continuous loop having a predetermined shape, said strip having an inner periphery and an outer periphery, at least one of said inner and outer peripheries being substantially congruent with one of the peripheries of at least one flange; and
at least one spoke of said sealing material attached to said first strip so as to extend outwardly therefrom, said spoke having an alignment edge for placement adjacent a fastener.

15 2. The gasket of claim 1, wherein said alignment edge is curved.

20 3. The gasket of claim 1, wherein said spoke includes a curved aperture formed therein, said alignment edge comprising a portion of the edge of said curved aperture.

25 4. The gasket of claim 3, wherein said curved aperture is elongate in a radial dimension.

5. The gasket of claim 1, wherein said spoke includes a tab portion extending beyond the outer peripheries of the flanges.

30 6. The gasket of claim 5, wherein said tab portion includes identification data disposed thereon.

5 7. The gasket of claim 1, wherein said first strip includes at least one notch in said outer periphery thereof.

10 8. The gasket of claim 1, wherein said outer periphery of said first strip is partially rectilinear.

15 9. The gasket of claim 8, wherein said spoke is defined by said sealing material disposed at the intersection between two linear portions of said partially rectilinear periphery.

20 10. The gasket of claim 1, wherein said sealing material is resilient and has a hardness less than the hardness of at least one of said flanges so that said sealing material compresses when the flanges are drawn together and expands to maintain a seal when the space between the flanges increases.

25 11. The gasket of claim 1, wherein said sealing material compresses in the direction of applied compressive force when the flanges are drawn together without substantial expansion lateral thereto.

30 12. The gasket of claim 1, wherein said sealing material is resilient and has a hardness characterized by a durometer less than 95 as measured by a Shore A scale ranging from zero to one hundred.

70. 13. The gasket of claim 12, wherein said sealing material has a durometer of about 55-70.

14. The gasket of claim 1, wherein said first strip and said spoke comprise a single, substantially flat piece of sealing material.

5 15. The gasket of claim 1, wherein said first strip and said spoke are made of a substantially flat, chemically inert and compressible sealing material.

10 16. The gasket of claim 15, wherein said sealing material is polytetrafluoroethylene (PTFE).

15 17. The gasket of claim 15, wherein said sealing material is fluoroelastomer (FFM).

20 18. The gasket of claim 15, wherein said sealing material is ethylene propylene rubber (EPR).

25 19. The gasket of claim 15, wherein said sealing material is polyvinylidene fluoride (PVDF).

30 20. The gasket of claim 1, wherein said sealing material is neoprene (CR).

Original 21. The gasket of claim 1, wherein said first strip and said spoke have a substantially uniform thickness between the inner periphery of the flanges and outer periphery of the flanges.

25 22. A gasket for providing a seal at the joint between a pair of pipe flanges for connecting one flange to the other, each flange having an inner periphery and an outer periphery, the joint having a plurality of fasteners disposed around the flanges, comprising:

30 at least one strip of sealing material formed in a substantially continuous loop having a predetermined shape, each of said strips having an inner periphery and an outer periphery, at least one of said inner and outer peripheries being substantially congruent with one of the peripheries of at least one flange; and

5 at least one notch formed in the outer periphery of at least one strip of sealing material so as to receive a thickness gauge.

10 23. The gasket of claim 22, wherein there are a plurality of strips of sealing material, at least two of said strips being substantially concentric.

15 24. The gasket of claim 22, wherein said outer periphery having said notch is partially rectilinear.

20 25. The gasket of claim 22, comprising a first strip of sealing material having said inner periphery substantially congruent with the inner periphery of at least one flange, and a second strip of sealing material having an outer periphery with each said notch formed therein, and a plurality of spokes of sealing material, each of said spokes disposed between and attached to said first strip and said second strip.

25 26. The gasket of claim 25, further comprising, between said first strip of sealing material, said second strip of sealing material and two or more of said spokes, sealing material significantly thinner than that which forms said first strip, said second strip and said spokes.

27. The gasket of claim 25, wherein there are a plurality of said notches, and said spokes extend between said strips at the location of said notches.

30 28. The gasket of claim 25, wherein the inner periphery of said second strip includes a convexity opposite the location of each said notch.

29. A gasket for providing a seal at the joint between a pair of pipe flanges for connecting one flange to the other, each flange having an inner periphery of known size and an

5 outer periphery of known size and shape, and a plurality of fasteners disposed around said flanges, comprising:

10 (a) a first strip of sealing material formed in a substantially continuous loop having a predetermined shape, said strip having an outer periphery whose size is greater than the size of the inner periphery of at least one flange;

15 (b) a second strip of sealing material formed in a substantially continuous loop having a predetermined shape, said second strip having an inner periphery whose size is greater than the size of said outer periphery of said first strip and less than the size of the outer periphery of at least one flange; and

20 (c) a plurality of spokes of sealing material, each disposed between and attached to said first strip and said second strip, and extending between said first strip and said second strip, said sealing material being resilient and the hardness of said sealing material being less than the hardness of at least one of the flanges so that said sealing material compresses when the flanges are drawn together and expands to maintain a seal when the space between the flanges increases.

25 30. The gasket of claim 29, further comprising, between said first strip of sealing material, said second strip of sealing material and two or more of said spokes, sealing material significantly thinner than that which forms said first strip, said second strip and said spokes.

30 31. The gasket of claim 29, further comprising a tab extending beyond said outer peripheries of the flanges.

5 32. The gasket of claim 29, further comprising a third strip of sealing material formed in a substantially continuous loop having a predetermined shape, said third stripe being disposed between said first strip and said second strip and having an inner periphery whose size is greater than the size of said outer periphery of said first strip and an outer periphery whose size is less than the size of said inner periphery of said second strip, said outer periphery of said second strip being substantially congruent with the outer periphery of a first flange and said outer periphery of said third strip being substantially congruent with the outer periphery of a second flange.

10

15 33. The gasket of claim 29 wherein said sealing material has the property that it compresses in the direction of applied compressive force without substantial expansion lateral thereto.

34. The gasket of claim 29 wherein said sealing material has a durometer less than 95 a as measured by a durometer having a Shore A scale ranging from zero to one hundred.

20

35. An assembly, comprising:

25

(a) a first flange having an inner periphery and an outer periphery;

30

(b) a second flange, having an inner periphery and an outer periphery, disposed substantially adjacent and parallel to said first flange, thereby defining a joint between said first flange and said second flange;

30

(c) a first strip of sealing material formed in a substantially continuous loop having a predetermined shape, said strip having an outer periphery whose size is greater than the size of said inner periphery of at least one of said flanges and being disposed between said first flange and said second flange;

5 39. The gasket of claim 38, wherein said first strip, said second strip and said spokes have substantially uniform thickness from a boundary inside said outer periphery of said first strip to a boundary outside said inner periphery of said second strip.

10 40. A method for assembling a pair of pipe flanges, comprising the steps of:

(a) placing the flanges adjacent one another in substantially parallel relation;

(b) placing between the flanges a gasket, said gasket having:

15 (i) a first strip of sealing material formed in a substantially continuous loop having a predetermined shape, said strip having an outer periphery whose size is greater than the size of the inner periphery of at least one of the flanges;

20 (ii) a second strip of sealing material formed in a substantially continuous loop having a predetermined shape, said strip having an inner periphery whose size is greater than the size of said outer periphery of said first strip and less than the size of the outer periphery of at least one of the flanges; and

25 (iii) a plurality of spokes of sealing material, each disposed between and attached to said first strip and said second strip, and extending between said first strip and said second strip;

(c) placing a plurality of fasteners around the flanges; and

30 (d) forcibly drawing the flanges together, said sealing material being resilient and the hardness of said sealing material being less than the hardness of at least one of the

5

flanges so that said sealing material compresses when the flanges are drawn together and expands to maintain a seal when the space between the flanges increases.

10 41. The method of claim 40 further comprising the step of selecting sealing material having the property that it compresses in the direction of applied compressive force without substantial expansion lateral thereto.

15 *Durometer* 42. The method of claim 40 further comprising the step of selecting sealing material having a durometer less than 95 as measured by a durometer having a Shore A scale ranging from zero to one hundred.

5

36. A gasket for providing a seal at the joint between a pair of pipe flanges for connecting one flange to the other, each flange having an inner periphery and an outer periphery, the joint having a plurality of fasteners disposed around said flanges, comprising:

10 a first strip of sealing material formed in a substantially-continuous loop having a predetermined shape, said first strip having an outer periphery whose size is greater than the size of the inner periphery of at least one flange;

15 a second strip of sealing material formed in a substantially-continuous loop having a predetermined shape, said second strip having an inner periphery whose size is greater than said outer periphery of said first strip and less than the outer periphery of said flanges; and

20 intermediate sealing material disposed between said first strip and said second strip, said intermediate sealing material being significantly thinner than said first strip and said second strip.

25 37. The gasket of claim 36, further comprising at least one spoke of sealing material extending between and attached to said first strip and said second strip, said first strip, second strip and spokes being of substantially uniform thickness.

30 38. The gasket of claim 36, further comprising a plurality of spokes of sealing material, each extending between and attached to said first strip and said second strip, said first strip, second strip and spokes being of substantially uniform thickness.